

# AUSTRALIAN BEES IN THE QUEENSLAND MUSEUM.

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## PARASPHECODES Smith.

This genus, which is very closely allied to *Halictus*, consists of a large number of species, nearly all apparently with very restricted distribution. They may be oligotropic on particular flowers, but at present we know hardly anything of their habits. Smith described a number of species, giving them names which are anagrams of *Halictus*. I have examined the types of all of these, but to my surprise I fail to find them in the various Australian collections coming to hand in recent years. The genus is especially south-eastern, with no less than twenty-one species described from Tasmania, and nineteen from Victoria, one of the latter extending to Tasmania. Two of the Victoria species go north to Queensland, which has eight species and a subspecies of a Victoria one not known elsewhere. From South Australia five species have been described, but from West Australia only two, and N.W. Australia one. Two are only known from N.S. Wales. The series now before me from the Queensland Museum (to which the types will be returned) adds a number of species, separable from one another as follows:—

	Clypeus partly yellow; males .. .. .	1.
	Clypeus all black; females .. .. .	4.
1.	Abdomen entirely black; mesothorax glaucous .. .. .	<i>cervicidis</i> Cockerell.
	Abdomen partly or wholly red .. .. .	2.
2.	Abdomen wholly chestnut-red; tubercles entirely black .. .. .	<i>solis</i> n. sp.
	Abdomen partly black .. .. .	3.
3.	Tegulae light ferruginous .. .. .	<i>longmani</i> n. sp.
	Tegulae black .. .. .	<i>subrussatus</i> n. sp.
4.	Abdomen entirely black .. .. .	5.
	Abdomen at least partly red .. .. .	6.
5.	Area of metathorax short, distinctly plicate, with a prominent raised rim .. .. .	<i>cervicidis</i> Cockerell.
	Area of metathorax long, feebly sculptured, submarginate at apex, without a raised rim .. .. .	<i>paramelaneus</i> n. sp.
6.	Flagellum red beneath .. .. .	<i>lichatinus</i> n. sp.
	Flagellum wholly black .. .. .	7.
7.	Larger; fourth abdominal segment entirely black .. .. .	<i>hirtiventris</i> n. sp.
	Smaller; fourth abdominal segment red .. .. .	<i>annexus</i> n. sp.

**Parasphecodes cervicalis** Cockerell.

Described from the ♀, collected in Tasmania. In December, 1919, Mr. Hacker took both sexes in the National Park, Queensland, where he also found the Tasmanian *Callomelitta littleri*. The specimens of ♀ *P. cervicalis* seem to differ slightly from the Tasmanian form, and when Tasmanian males are available may possibly be separable, but at present I am quite unable to state any valid distinctions. The occurrence of supposed Tasmanian endemics at various points on the mainland begins to carry the conviction that the Tasmanian bee-fauna does not represent a high degree of differentiation since the separation of the island, but rather the survival of a series of old species, some of which are now extinct on the mainland, while others are restricted to limited areas.

The male of *P. cervicalis* is new. It resembles the female, but is more slender, while the clypeus is chrome-yellow except for a large quadrate black mark on each side above. Labrum, mandibles, and antennæ black, the flagellum not strongly moniliform. There is black hair at the apex of the abdomen; the second ventral segment has a median elevation, without any tuft of hair. The abdomen is entirely black, the margins of the segments concolorous. There is a close general resemblance to *P. nigrinus* Meyer, from Tasmania.

**Parasphecodes solis** n. sp.

Male. Length nearly 10 mm., slender, head and thorax black, abdomen entirely chestnut-red, suffused with dusky beyond the third segment, but with no black segments or dark markings; hair of head and thorax dull white, abundant on front and sides of face; some dark hair at end of abdomen; labrum and mandibles black or nearly; clypeus with an extremely broad pale yellow band, emitting a cuneiform extension upward; scape short, flagellum very long, strongly moniliform, the joints of the basal half marked with red beneath; mesothorax entirely dull, with a granular appearance; scutellum bigibbous, dull, and granular, without special tomentum; area of metathorax distinctly defined, angulate posteriorly, covered with very coarse wavy rugæ, between which it is distinctly shining; tegulæ dull red; wings dusky reddish, stigma dark reddish, nervures fuscous; second submarginal cell higher than long, receiving recurrent nervure very near its end; femora black, red at extreme apex; tibiæ red, the anterior pair clear and bright, the hind ones dusky; anterior tarsi dusky red, the others black or nearly; abdomen moderately shining, with excessively fine punctures, close and uniform on first two segments, on first segment extending to the margin; no prominence on under side of second segment.

Sunnybank, 19-11-13 (*H. Hacker*). In Meyer's table and in my table of Tasmanian species, this runs to *P. perustus* Ckll., but is larger, with darker antennæ, &c. It resembles *perustus* in having the third submarginal cell much broader above than second.

***Parasphecodes longmani* n. sp.**

Male. Length about or nearly 8 mm, rather slender. head and thorax black, abdomen dusky-red, with a broad black stain on middle of first two segments, and segments beyond the third wholly black; hair of head and thorax thin, brownish on face, front, vertex, and thoracic dorsum, pure white on cheeks and mesopleura; head broad, orbits strongly converging below; broad band on clypeus, with a cuneiform upward extension, labrum and greater part of mandibles yellow; antennæ black, the flagellum moniliform, not especially long (length somewhat over 4 mm.); front entirely dull, but a shining space in front of middle ocellus; mesothorax and scutellum dull, slightly glistening on disc, very minutely and densely punctured. scutellum bigibbous, without special tomentum; area of metathorax poorly defined, with fine vermiform rugæ; tegulæ bright yellowish-ferruginous; wings hyaline, slightly greyish; stigma dark reddish, nervures fuscous; second submarginal cell nearly square; first recurrent nervure entering base of third submarginal, as in *P. sulthica* Smith; femora black, with red knees; anterior and middle tibiæ and all the tarsi red; hind tibiæ black with broadly red base and a little red at apex; abdomen above with very scanty short hair, venter with much white hair, second ventral segment simple.

Caloundra, 20-1-16 (*H. Hacker*). Rather like *P. minimus* Meyer, but larger, with dark antennæ, &c. The tubercles are red. Dedicated to the Director of the Queensland Museum.

***Parasphecodes subrussatus* n. sp.**

Male. Length about or a little over 8 mm., not very slender, the abdomen broad at base, almost parallel-sided but slightly widening to the fourth segment; head and thorax black, with rather long dull white hair, faintly brownish dorsally; first abdominal segment black, broadly red apically, with a further red extension on sides; second segment red, with a transverse median black mark; third red, with a black spot at each extreme side toward base; fourth and following segments black, but the fourth red beneath, with a black median stain; at least lower half of clypeus shining lemon yellow, with a small median extension; labrum black; mandibles black, dark-reddish apically; flagellum long, clear ferruginous beneath; mesothorax and scutellum dullish, somewhat shining on disc, extremely finely punctured, scutellum bigibbous; area of metathorax poorly defined, with fine rugæ; tegulæ black; tubercles black; wings hyaline, slightly greyish, stigma and nervures ferruginous; second submarginal cell much higher than long, receiving recurrent nervure well before its end; legs black; abdomen shining, the red colour bright; second ventral segment simple.

Kosciusko, 26-1-14 (*A. J. Turner*). Very distinct by the marking of the abdomen, combined with the black tegulæ and legs.

**Parasphecodes paramelænus** n. sp.

Female. Looks like *P. cervicalis*, with which I had mixed it, but it is a little smaller, with anterior wing about 7 mm.; face narrower, clypeus without a distinct median groove; mesothorax entirely dull black, not at all glaucous, with excessively dense and minute punctures; scutellum densely and minutely punctured; area of metathorax long, with no raised rim, its surface obscurely rugose, except apically; wings paler and strongly reddish; first recurrent meeting second intercubitus; outer side of third submarginal cell without a double curve; first two abdominal segments very finely, closely, and regularly punctured, the depressed apical part of second segment, and first to extreme apex, punctured; second ventral segment hairy, but without a distinct prominence. The apical part of abdomen has short black hair.

National Park, Queensland, Dec., 1919 (*H. Hacker*). *P. atronitens* Ckll. is very closely allied, but distinguished by the colour of wings and sculpture of abdomen.

**Parasphecodes lichatinus** n. sp.

Female. Length about or nearly 10 mm., anterior wing nearly 8; robust, head and thorax black; abdomen with the first three segments deep chestnut-red, the first with a very broad blackened area across the middle, the third with the hind margin blackened; fourth and following segments black; hair of head and thorax dull whitish, thin on thorax above; clypeus shining, with sparse strong punctures; flagellum red beneath and at extreme tip, the colour almost brick red; mesothorax and scutellum densely and distinctly punctured, but glistening between the punctures; scutellum slightly bituberculate; area of metathorax with coarse irregular rugæ, more or less broken up, and a sharp hind margin; tegulæ dark red; wings reddish, strongly dusky in marginal cell, stigma and nervures piceous, stigma unusually narrow; second submarginal cell large, about square, about as broad above as third, receiving first recurrent nervure almost at apex; legs black, with coarse dark hair on outer side of hind tibiæ and tarsi; abdomen shining, finely punctured, apical part with black hair dorsally.

Ararat, Victoria (*H. W. Davey*). Very close to *P. lichatus* Smith, from Western Australia, but with darker wings, and I think separable.

**Parasphecodes hirtiventris** n. sp.

Female. Length about 10 mm., robust, head and thorax black, their pubescence fulvous dorsally; abdomen with the first three segments dark red, the others black; first segment with a large T-shaped black mark, third with a transverse dusky cloud in middle, and hind margin darkened; an even narrow line of white cilia overlapping extreme base of third segment; tongue cuneiform, short and broad; clypeus shining, with scattered punctures; antennæ entirely black, scape very long; mesothorax and scutellum dull, extremely densely and minutely punctured; area of

metathorax long, shining, the basal half obscurely sculptured; extreme sides of metathorax densely hairy; mesopleura very hairy; tegulæ rufopiceous; wings dusky, darker at apex, stigma and nervures rather dilute sepia; outer recurrent and intereubitus weakened; second submarginal cell broad below, narrowed above, the recurrent nervure joining its extreme apex; legs black, hind legs with pale hair, that on tibiæ shining silvery, hind basitarsi with a bright red tuft at apex; abdomen shining, first two segments with extremely minute punctures; venter extremely hairy.

Ebor, 2-1-14 (*A. J. Turner*). In Meyer's table runs to *P. insignis* Meyer, from Tasmania, but the sculpture is very different. It is also related to *P. arciferus* Ckll. and *P. leptospermi* Ckll. *P. arciferus* differs at once by the area of metathorax and colour of pubescence, and the same may be said of *leptospermi*.

**Parasphecodes annexus** n. sp.

Female. Length a little over 7 mm., robust, head and thorax black, abdomen broad, chestnut-red, first segment with a very broadly triangular black area, and hind margins of all the segments strongly dusky; hair of head and thorax thin, slightly ochreous dorsally, white on cheeks and pleura; clypeus shining, with sparse punctures, and no median groove; antennæ black; mesothorax and scutellum shining, with small punctures, well separated on disc; area of metathorax semi-lunar with no raised rim, shining, finely rugose, subplicate basally; tegulæ dark-reddish, anterior margin hyaline; wings hyaline; stigma and nervures dark-brown, outer recurrent and intereubitus extremely weak; second submarginal cell about square, about as broad above as third; first recurrent nervure joining base of third submarginal, as in *P. sulthica* Sm., legs black, hair on hind legs pale, on hind tibiæ silvery, with a green stripe posteriorly; hind basitarsi with a bright red apical brush; abdomen without conspicuous punctures, first two segments excessively minutely punctured; venter hairy.

Adaminaby, N.S.W., 19-10-18 (*A. J. Turner*). In many ways similar to *P. melbournensis* Ckll., but much smaller.

HALICTUS Latr.

The following table separates a series of species in which the mesothorax is metallic, green or blue. Up to the present, thirty-two species of this type have been described from Australia (including Tasmania). Some additions are given below:—

Males	..	..	..	..	..	..	..	..	..	..	..	1.
Females	..	..	..	..	..	..	..	..	..	..	..	3.
1. Clypeus largely yellow, mandibles yellow	..	..	..	..	..	..	..	..	..	..	<i>purnongensis</i>	Ckll.
Clypeus without yellow	..	..	..	..	..	..	..	..	..	..	..	2.
2. Hind tibiæ light red	..	..	..	..	..	..	..	..	..	..	<i>olivinus</i>	n. sp.
Hind tibiæ black, red at extreme ends. (Caloundra, 20-1-16)	..	..	..	..	..	..	..	..	..	..	<i>kesteveni</i>	Ckll.

3. Abdomen metallic .. .. .	4.
Abdomen not metallic .. .. .	5.
4. Abdomen bright steel-blue. (Brisbane, 12-2-18) .. .. .	<i>caloundrensis</i> Ckll.
Abdomen greenish. (Brisbane, 12-2-18) .. .. .	<i>dampieri</i> Ckll.
5. Abdomen red. head black .. .. .	6.
Abdomen black or dark-brownish .. .. .	7.
6. Smaller; mesothorax shining .. .. .	<i>erythrurus</i> Ckll.
Larger; mesothorax dullish, with larger scattered punctures. (Oxley, Brisbane, Sept., 1914; Brisbane, 4-9-14, 6-10-14, 26-9-16) .. .. .	<i>brisbanensis</i> Ckll.
7. Head metallic .. .. .	8.
Head black .. .. .	9.
8. Stigma very dark. (Brisbane, 12-2-18, National Park, Q., Dec., 1919) .. .. .	<i>urbanus</i> Smith.
Stigma reddish; scutellum shining, steel-blue, contrasting with the green mesothorax .. .. .	<i>urbanus</i> var. <i>lomatia</i> n. var.
9. Mesothorax green, dullish .. .. .	<i>limatiformis</i> n. sp.
Mesothorax blue .. .. .	10.
10. Mesothorax steel-blue, highly polished; stigma dark .. .. .	<i>humiliformis</i> n. sp.
Mesothorax not polished; stigma pallid .. .. .	<i>mesocyanus</i> n. sp.

The Queensland specimens were all collected by Mr. Hacker.

#### ***Halictus purnongensis* Cockerell.**

The range is greatly extended by a male from Brisbane, 6-10-14 (*Hacker*). It represents a variation with the hind margins of the abdominal segments dark.

#### ***Halictus erythrurus* Cockerell.**

Brisbane, 3-10-16, a variation with tegulæ darker than usual.

#### ***Halictus olivinus* n. sp.**

Male. Length about or nearly 5 mm., slender, head and thorax shining dark olive green, the metathorax steel-blue, contrasting; labrum and mandibles dark-reddish; head unusually broad, eyes strongly converging below, clypeus polished and shining, front dull, shining along orbits; scape black; flagellum long and slender, ferruginous beneath; mesothorax shining but not polished, scutellum highly polished; area of metathorax large, with weak striæ, apical margin thickened; posterior truncation without sharp lateral edges; hair of head and thorax extremely scanty, white; tegulæ pale testaceous; wings hyaline, faintly dusky; stigma piecous; marginal nervure dark, the other nervures mainly pallid, the outer recurrent and intercubitus hardly visible; first submarginal cell much larger than the other two combined; second submarginal very narrow, third almost as narrow as second; first recurrent nervure meeting second intercubitus; femora rufopiceous, knees, tibiæ, and tarsi pale ferruginous; abdomen dark brown, brightly polished, venter with erect hair.

Brisbane, 3-3-14 (*H. Hacker*). I am at a loss to associate this with any known female. Among the described males it has some resemblance to *H. dampieri* Ckll., but in that species the area of metathorax is dull and quite different; in the present insect it is concave and shining. It is easily known from *H. hackeriellus* Ckll. by the red tibiæ.

***Halictus urbanus* var. *lomatix* n. var.**

Female. Mesothorax peacock-green; scutellum bright blue, highly polished, contrasting; legs rufotestaceous; stigma rather dilute reddish-brown; flagellum bright ferruginous beneath. Outer recurrent nervure and intercubitus hardly visible.

Sunnybank, Brisbane, on flowers of *Lomatia*, 13-5-12. (*H. Hacker*.) I had taken this for a distinct species, on account of the shining blue scutellum and paler stigma, but microscopic examination shows that the hind spur, sculpture of area of metathorax and scutellum, &c., are precisely as in *H. urbanus*.

***Halictus limatiformis* n. sp.**

Female. Length about 5 mm., black, with the mesothorax only (not even scutellum) dark bluish-green; pubescence dull white, abundant and curled on under side of abdomen; apical part of mandibles very dark-reddish; front dull, orbital margins shining; antennæ black; mesothorax shining but not highly polished, with scattered punctures; scutellum shining; area of metathorax granular and dull, feebly plicate, with a shining margin; tegulæ dark castaneous; wings dusky hyaline; stigma large and very dark, nervures brown, outer recurrent and intercubitus almost obsolete; first recurrent nervure ending just before second intercubitus; third submarginal cell short, little longer than second; legs black, anterior knees red; abdomen shining black, without bands. Under the microscope the mesothorax is seen to be minutely tessellated, with widely scattered distinct punctures. Area of metathorax entirely without a sharp rim. Hind spur pectinate with small teeth.

National Park, Queensland, Dec., 1919 (*H. Hacker*). Very close to the Tasmanian *H. limatus* Smith, but that has the area of metathorax more distinctly striate, and pale testaceous tegulæ. It may be only a race of *limatus*.

***Halictus humiliformis* n. sp.**

Female. Closely resembling *H. limatiformis*, but differing thus:—Mesothorax shining blue, with a polished surface; area of metathorax with fine but regular and distinct plicæ or striæ (as in *H. limatus*, from which it differs by the shining mesothorax). By the small shining mesothorax it agrees with *H. humilis* Smith, but from that it differs by the black legs, with anterior knees red, and the entirely black antennæ. The hind spur is not pectinate; the scutellum is very sparsely punctured, and the surface of the mesothorax, between the punctures, shows only traces of tessellation.

Ebor, N.S.W., 30-12-15 (*A. J. Turner*).

**Halictus mesocyaneus** n. sp.

Female. Length about 5 mm., head and thorax black except the mesothorax, which is deep blue, somewhat shining, but not polished; legs black (anterior knees not red); abdomen dark brown, suffused with dark-reddish, the hind margins of the segments paler; venter with long curled hair. Mandibles reddened apically; flagellum obscurely brownish beneath; greater part of front somewhat shining; scutellum shining; area of metathorax with delicate radiating striæ, and a shining rim; tegula reddish testaceous; wings yellowish hyaline, stigma large, pale-reddish; abdomen broad, shining. The area of metathorax is microscopically sculptured between the raised lines or plicæ. The mesothorax is microscopically tessellate, with widely scattered extremely weak punctures.

Bribie Island, 1-4-18 (*Hacker*). Smaller than *H. inclinans* Smith, and easily separated by the polished abdomen and black scutellum.

**Halictus bicingulatus** Smith.

Mr. Hacker has collected this as follows:—Males, Bribie I., 2-11-13, 2-11-15; females, Brisbane, 18-9-14. Sunnybank, Brisbane, at flowers of *Leptospermum*, 9-9-12; Kelvin Grove, 14-9-12, entering a hole in a clay bank.

**Nomia moerens** Smith.

National Park, Q., Dec., 1919 (*Hacker*).

**Anthophora lilacina** Cockerell.

Misprinted "*lilacine*" in Mem. Qu. Mus., VII, p. 84, but given correctly in Hacker's Catalogue.

## GNATHOPROSOPIS Perkins.

**Gnathoprosopis amiculiformis** (Cockerell).

*Prosopis amiculiformis* must go in *Gnathoprosopis*. A female was taken at Brisbane, 17-10-16 (*Hacker*).

**Gnathoprosopis bituberculata** (Smith).

Males were collected by F. M. Littler in Tasmania; at Launceston, 7-11-15; and St. Helens, 14-1-16. The species is new to Tasmania.

**Gnathoprosopis amicula** (Smith).

Females, National Park, Q., Dec., 1919 (*Hacker*); a form with rather dusky wings. The chrome-yellow face-marks and much narrower clypeus readily distinguish this from *G. hackeri*.



**Gnathoprosopis simpliciventris** n. sp. (? *hackeri* var.).

Male. Agrees with *G. hackeri*, except that the under side of the abdomen has a pair of low inconspicuous elevations instead of large dentiform processes.

Brisbane, 6-10-14 (*Hacker*). This was taken on the same day as a male *hackeri*, and it seems nearly certain that it is a form of that species, in spite of the great difference and the prominences of the abdominal venter. A final decision can only be reached by observations in the field.

**Gnathoprosopis amiculina** n. sp.

Female (Type). Resembles *G. amicula*, but is somewhat less robust, with the anterior and middle tibiæ entirely black, and the hind ones narrowly cream-colour at base. The second submarginal cell is shorter, the scape is entirely black (though the flagellum is ferruginous beneath), and the lateral face-marks are more pointed above.

Male. Described as male of *amicula*. Mem. Queensl. Mus., V, p. 198.

The type is from Brisbane, 17-10-16 (*Hacker*). This is the Brisbane so-called *amicula*; renewed study, with more material, convinces me that it must be separated.

**Gnathoprosopis hackeri** Cockerell.

Female. Length about 7 mm., robust, considerably larger than *amicula* or *amiculina*; lemon-yellow lateral face-marks and swollen orange collar and tubercles as in *amicula*, but the orange of the prothorax is broadly interrupted in middle, and the lateral face-marks are distinctly narrower, obliquely truncate above. Scape black, flagellum ferruginous beneath; mandibles as usual in the genus; mesothorax and scutellum finely punctured, but the punctures are distinctly visible under a lens; anterior tibiæ rufous on inner face; hind tibiæ with only a small basal cream-coloured spot; tegulæ black; second submarginal cell large and broad, first recurrent nervure meeting the intercubitus; abdomen with excessively fine punctures, the basal segment shining.

Brisbane, 8-10-18 (*Hacker*). I give a description, as no adequate account of this sex has appeared.

PROSOPIS Fabricius.

**Prosopis cyaneomicans nigrescens** Cockerell.

Bribie Island (*Hacker*).

**Prosopis eburniella** Cockerell.

Female. Brisbane, 24-9-18 (*Hacker*).

**Prosopis coronata** Cockerell.

Male. Variety with supraclypeal mark small, tranverse, entirely red.

Brisbane, 6-10-14 (*Hacker*).

**Prosopis kelvini** Cockerell.

Brisbane, 8-9-18, two males (*Hacker*).

**Prosopis leptospermi** n. sp.

Female. Running in my M.S. key to *Gnathoprosopis hackeri*, but entirely different in colour of tubercles and legs, and other characters. It could also be run near *amicula*, but is quite different. Length about 7.5 mm., robust, black, with dull pale-yellow markings, consisting of cuneiform lateral face-marks (ending obtusely above, away from orbital margin), interrupted band on prothorax above (not approaching tubercles), and tubercles; legs black, the anterior tibiæ with an elongate red patch in front; mandibles sulcate, not of the broad *Gnathoprosopis* type; clypeus entirely dull, with a fine median raised line; scape long black; flagellum unusually short, very obscure reddish beneath; front dull; cheeks beneath with long white hair; mesothorax and scutellum dull, extremely finely punctured; postscutellum large; basal area of metathorax short; tegulæ black; wings dusky, with black stigma and nervures; second submarginal cell very broad, receiving recurrent nervures some distance from base and apex; more of marginal nervure is on second submarginal cell than on first; legs ordinary, spurs pale ferruginous; abdomen dull without evident punctures, first two segments laterally with very thin white hair; fifth ventral segment with a fringe of short hair, appearing pale reddish in some lights.

Sunnybank, Brisbane, at *Leptospermum* flowers, 17-9-14 (*Hacker*).

**Prosopis crassifemorata** n. sp.

Male. Length about or hardly 6 mm., black, with the face below antennæ, and the greatly swollen upper border of prothorax (interrupted in middle), connected with and including tubercles, bright chrome-yellow; orbits converging below, face dull, clypeus very long, no supraclypeal mark; scape rather short and thick, pale at base and apex; flagellum dull pale red beneath; front dull; mesothorax and scutellum somewhat shining, very minutely punctured; metathorax rounded, not sharply truncate, with only a very narrow basal rugose band; tegulæ partly pallid; wings hyaline, very faintly dusky, stigma dark brown; second submarginal cell broad, receiving recurrent nervures near base and apex; legs black, anterior tibiæ pale red in front; hind femora very stout, covered beneath with dense white felt-like hair; hind tibiæ swollen; abdomen shining, with excessively minute punctures; venter simple.

Sunnybank, Brisbane, 19-11-13 (*Hacker*). A peculiar little species, best recognised by the hind femora. It runs to 36 in my table.

**Prosopis xanthopsyche** n. sp.

Male. Length about 4.5 mm.; black, with the face below antennæ (the surface dull), bright chrome-yellow, including a quadrate supraclypeal mark; lateral face-marks broadly truncate above, but notched; mandibles (except tips) and labrum bright yellow; face rather broad; scape ordinary, with a yellow line in front; flagellum long, pale dull reddish beneath; upper border of prothorax (not reaching tubercles) and tubercles yellow; mesothorax and scutellum dull, not evidently punctured (the compound microscope shows minute well separated punctures on a tessellated surface); metathorax rounded, distinctly glistening above, the extreme base rugose and dull; tegulæ small and dark; wings dusky hyaline, stigma dark brown; recurrent nervures joining first and second submarginal cells near ends; second submarginal narrowed above; anterior knees, tibiæ (except a large mark behind) and tarsi, middle tibiæ at base and apex, and hind tibiæ broadly at base all yellow; middle basitarsi and basal half of hind ones yellowish-white; abdomen dullish, with a satiny lustre, venter simple.

Brisbane, 24-9-18 (*Hacker*). The specific name is fanciful, given because the yellow area of face, viewed upside down, has the outline of a moth with wings directed backward. In my table this runs to 36, but is unlike any of the species falling in that vicinity.

**Prosopis amatula** n. sp.

Male. Length about 3.5 mm., black, slender, with the face below antennæ and narrow upward extensions along orbits, the very short (heart-shaped) scape, second antennal joint (short and transverse) and the tubercles very pale yellow; face rather broad, polished; flagellum long, very pale yellowish-red beneath; labrum and mandibles entirely pale yellow; mesothorax and scutellum shining, but minutely sculptured all over; area of metathorax broad, ill-defined, microscopically cancellate; wings hyaline, stigma sepia; first recurrent nervure joining first submarginal cell near end, second meeting outer intercubitus; legs light yellow; hind femora black, yellow at base and apex; hind tibiæ with apical half dark; abdomen slender, claviform, second segment pale red apically.

Caloundra, Q., 20-1-16 (*H. Hacker*). Runs to *P. primulipicta* Ckll. in my table, but is very distinct. It may also be compared with *P. asinalla* Ckll., but that is larger, with longer clypeus and supraclypeal area, &c. *P. bacillaria* Ckll. differs at once by the slender scape and dull mesothorax. *P. minuscula* Ckll. is readily distinguished by the scape and absence of yellow supraclypeal area. *P. pulchripes* Ckll. has a slender scape, larger (deeper) stigma, &c. Under the compound microscope the second antennal joint of *P. amatula* appears circular, about as broad as long.

**Prosopis brevior** Cockerell.

Male. One from Caloundra, 20-1-16, taken with *P. amatula*. One Oxley, Brisbane, 17-9-14 (*Hacker*).

**Prosopis melanocephala** n. sp.

Female. Length about 5 mm., head and thorax black, without light markings, but flagellum bright chestnut-red; legs black, the tarsi more or less reddish; abdomen shining chestnut-red, with a black patch on middle of first segment, and the other segments more or less suffused with dusky medially, the basal part of third and fourth segments slightly purplish; tegulæ black; wings hyaline, stigma black; second submarginal cell broad, receiving recurrent nervures very near base and apex; clypeus broad; face and front striato-punctate; a slender groove (visible under compound microscope) up middle of front; mesothorax dull and closely punctured; base of metathorax coarsely rugose.

Type from Darra, 14-10-13 (*Hacker*). Also from Brisbane, 14-11-12 (*Hacker*). A very distinct species, running out at 7 in my table.

**Prosopis ancorata** var. **subconstricta** n. var.

Male. Length about 5 mm., face-marks cream-colour; first abdominal segment dark red. Very close to *P. constricta* Ckll., with the same face-markings, antennæ, &c., but abdomen black with the first segment dark red (bright chestnut-red at sides of base) and second with apical margin narrowly reddened; tubercles black with a slight red edge; wings brownish.

On flowers of *Malaleuca preissiana*, Brisbane (*Hacker*). *P. ancorata* appears distinct from *P. constricta* Ckll., but the variety now described is intermediate, and it will probably prove that all three are forms of a single species.

**Prosopis scintillans** n. sp.

Male. Length hardly 3.5 mm., slender, clypeus, labrum, mandibles, and narrow bands along orbits (ending very slenderly about halfway up front) all white; scape and second antennal joint pale yellowish beneath, the rest of antennæ pale red beneath; head round seen from in front; mesothorax and scutellum dullish; the compound microscope shows vertex, mesothorax, and scutellum all with distinct well separated punctures on a tessellated surface; metathorax rounded, the broad base with microscopic transverse lineolation, more or less joined to form tessellation, but with no trace of plicæ or rugæ; tegulæ dark brown, wings hyaline, faintly dusky, iridescent; stigma dark brown; second submarginal cell small, recurrent nervures meeting the intercubitals; upper border of prothorax dark, but tubercles apically yellow; anterior knees and tibiæ very pale-reddish, the tibiæ with a faint dusky cloud; middle and hind tibiæ white or reddish-white at base and apex; all the tarsi light; abdomen shining reddish-black, the venter simple. There is a very small supraclypeal mark.

Brisbane, 26-9-16 (*Hacker*). Goes to 34 in my table, and appears to be close to *P. scintilla* Ckll., but with white face-markings. It may possibly be a subspecies of *Scintilla*.

The above species of *Prosopis* and *Gnathoprosopis*, none of which have the scutellum or postscutellum yellow or orange, may be separated by the following table :—

Clypeus black (females) .. .. .	1.
Clypeus light (males) .. .. .	7.
1. Face entirely black, abdomen blue .. .. .	<i>cyaneomicans nigrescens</i> Ckll.
Face entirely black, abdomen red .. .. .	<i>melanocephala</i> Ckll.
Face with light lateral marks .. .. .	2.
2. Markings white .. .. .	<i>cburniella</i> Ckll.
Markings yellow .. .. .	3.
3. Light colour of collar not continuous with that of tubercles .. .. .	<i>leptospermi</i> Ckll.
Yellow or orange of collar continues with that of tubercles .. .. .	4.
4. More than basal half of hind femora pale orange .. .. .	( <i>Gnathoprosopis</i> ) <i>amicula</i> Sm.
Less than basal half of hind femora pale, the colour yellowish-white .. .. .	5.
5. Clypeus narrow ; first recurrent nervure meeting intereubitus ( <i>Gnathoprosopis</i> ) .. .. .	<i>amiculina</i> Ckll.
Clypeus broad .. .. .	6.
6. Larger ; first recurrent nervure meeting intereubitus .. .. .	( <i>Gnathoprosopis</i> ) <i>hackeri</i> Ckll.
Smaller ; first recurrent nervure falling short of intereubitus .. .. .	( <i>Gnathoprosopis</i> ) <i>amiculiformis</i> Ckll.
7. Antennæ entirely bright ferruginous .. .. .	<i>coronata</i> Ckll.
Antennæ not so coloured .. .. .	8.
8. Scape circular, with a yellow mark in front .. .. .	<i>kelvini</i> Ckll.
Scape oval, entirely black .. .. .	( <i>Gnathoprosopis</i> ) <i>bituberculata</i> Smith.
Scape ordinary, or (in <i>P. amatula</i> ) very short .. .. .	9.
9. Face-marks bright orange ; orange of collar joining that of tubercles ; hind legs with tegument entirely black .. .. .	<i>crassifemorata</i> Ckll.
Face-marks pale orange ; yellow of collar separated from that of tubercles ; hind legs partly yellow .. .. .	<i>xanthopsyche</i> Ckll.
Face-marks pale yellow or white, not orange .. .. .	10.
10. Collar bright orange, continuous with tubercles ; venter with low tubercles .. .. .	( <i>Gnathoprosopis</i> ) <i>simpliciventris</i> Ckll.
Collar not orange ; small species .. .. .	11.
11. Scape very short, light yellow ; middle tibiæ entirely yellow .. .. .	<i>amatula</i> Ckll.
Scape otherwise ; middle tibiæ at least largely dark .. .. .	12.
12. A cuneiform black mark at each side of clypeus .. .. .	<i>ancorata subconstricta</i> Ckll.
No such marks on clypeus .. .. .	13.
13. Larger ; face-marks pale yellow or creamy-white ; supraclypeal mark well developed .. .. .	<i>brevior</i> Ckll.
Smaller ; face-marks clear white ; supraclypeal mark represented by a minute transverse mark just above clypeus, hardly noticeable .. .. .	<i>scintillans</i> Ckll.

BINGHAMIELLA Cockerell.

**Binghamiella antipodes** (Smith)

Bright, V. (*H. W. Davey*).

## EURYGLOSSA Smith.

**Euryglossa furcifera** Cockerell.

Female. Brisbane, 15-2-16 (*Hacker*).

**Euryglossa calliopsiformis** Cockerell.

Female. Brisbane, 10-10-16, and 8-10-18 (*Hacker*); Logan Road, Brisbane., at *Leptospermum*.

Male. Sunnybank, on flowers of *Jacksonia scoparia* R. Br., unusually small, about 4.3 mm. long, with second submarginal cell shorter, and its upper apical angle more acute. Another male, Brisbane, 10-10-16 (*Hacker*), has the band on cheeks broader, a triangular yellow mark on the postscutellum, and the second submarginal cell more as in the female, with the first recurrent joining it far from base. Possibly the *Jacksonia* specimen should be separated, but at present I conclude that we have a single very variable species. The scutellum is dark with a variable yellow band on hind margin, and the axillæ have yellow spots.

**Euryglossa terminata** Smith.

I saw the type in the Saunders collection at Oxford, and noted that it was a large species, wings dilute fuliginous; fifth abdominal segment red, with golden hair. Smith's measurement, "length 4 lines," is evidently erroneous. It therefore appears practically certain that *E. hæmatura* Ckll. is identical with *terminata*.

**Euryglossa depressa** Smith.

A female from Portland, Victoria (*H. W. Davey*), is evidently the true *depressa* of Smith, as is shown by the broad subtriangular facial foveæ, which are described by Smith. The tarsi are dark (hind tarsal joints red at ends), not rufo-piceous as described by Smith, but the description otherwise agrees very well. The pale yellowish fulvous hair on occiput is as indicated by Smith. I noted at Oxford that *E. depressa* had clear hyaline wings and very broad abdomen; in the present specimen the abdomen is very broad (4 mm. wide), and the wings, which are 6.7 mm. long, are hyaline tinged with brown, the stigma ferruginous. The disc of mesothorax and scutellum are sparsely punctured, the punctures on the scutellum small; flagellum very obscure brown beneath, bright red at extreme tip. The mesothorax shows a broad concavity mesad of each wing, traversed by the parapsidal groove.

My *E. depressa sparsa* appears to be correctly considered a variety of this, but the species I had as *E. depressa* Sm., from Victoria, is distinct, and may be described as follows:—

**Euryglossa polysticta** sp. n.

Female. Length 8.5-9.5 mm.; similar to *E. depressa*, but smaller and with narrower abdomen; facial foveæ linear; flagellum dark, not red at tip; mesothorax anteriorly with very numerous minute punctures, and scutellum quite closely

punctured; wings slightly (sometimes conspicuously) brownish, stigma very dark; hair of occiput very pale yellow; abdomen dull green, hind margins of segments black; legs black, the tarsi ferruginous apically. Very close to *E. subsericea* Ckll., from Mackay, Queensland, but larger, with longer second submarginal cell, and much broader face.

Type from Dandenong, Victoria, Nov., 1902 (*T. Kershaw*). Also occurs at Croydon.

#### ***Euryglossa hypoleuca* Cockerell.**

Mr. Hacker has discovered the female, and sends specimens from Caloundra, 20-1-16. This female resembles that of *E. albocuneata* Ckll., but is less robust, with the clypeus narrower, the cuneiform lateral face-marks longer, the lower margin of clypeus, mandibles (except tips), and labrum bright ferruginous, the antennæ (including scape) ferruginous on outer side. The knees, tarsi, and anterior tibiæ in front are red, but the hind tibiæ are white basally. The face is concave. The abdomen is without distinct banding, but the hind margins of the segments are narrowly pallid.

#### ***Euryglossa politifrons* sp. n.**

Female. Length nearly 6 mm., with very broad abdomen; head black, with the polished, bare, hardly punctured clypeus ferruginous; supraclypeal area highly polished, dark reddish; front shining, with a median groove; scape red, with the apex intense black; labrum and basal half of mandibles reddish; mesothorax and scutellum bare, ferruginous, polished, with minute very sparse punctures; prothorax red, dusky below at sides; pleura black; axillæ much lighter red than scutellum; postscutellum and upper part of metathorax red; tegulæ ferruginous; wings hyaline, stigma and nervures dusky reddish; basal nervure falling far short of nervulus; second submarginal cell receiving first recurrent nervure far from base, the second almost or quite at apex; legs pale ferruginous, anterior and middle femora suffused with dusky above; abdomen ferruginous, with subquadrate black marks at extreme sides of the segments, apex dusky reddish.

Emerald, 1916 (*E. Allen*). Allied to *E. frenchii* Ckll., but distinguished by the red legs and clypeus, as well as the small size.

#### ***Euryglossa occipitalis* sp. n.**

Female. Length about 10 mm., very robust; head and thorax black, abdomen very broad, ferruginous, black (with black hair) at tip, and the segments with inconspicuous biundulate dusky (somewhat bluish) bands, failing sublaterally; legs very dark brown, small joints of hind tarsi clear red. Face very broad, shining, clypeus sparsely punctured; mandibles with an orange patch on outer side before apex, and just before this a reddish area; antennæ dark, flagellum reddish beneath subapically; occiput with bright orange-fulvous hair; mesothorax and scutellum polished, sparsely punctured; tegulæ reddish; wings hyaline, slightly dusky, stigma

dark reddish, nervures fuscous; second submarginal cell long, receiving recurrent nervures some distance from base and apex; abdomen very sparsely and feebly punctured; venter light yellowish-ferruginous.

Portland, Victoria (*H. W. Davey*). Closely related to *E. victoriae* Ckll., but without metallic colours on head and thorax, and abdomen with much more red.

***Euryglossa longicornis* sp. n.**

Male. Length about 9 mm., not very robust, black, the abdomen with a satiny lustre, and the hind margins of the segments obscurely brownish; apex of abdomen pointed. Head thick, face broad, eyes not converging below; scape robust, shining black; flagellum very long, with the first five or six joints dull ferruginous beneath; third antennal joint short, but not so short as second; face, labrum, and mandibles black; clypeus and supra-clypeal area shining, with strong moderately close punctures; hair of cheeks white, of front and occiput tinged with yellowish; mesothorax truncate anteriorly, very closely punctured but shining; scutellum with stronger rather sparse punctures; tegulae dark reddish; wings brownish, stigma and nervures dark brown; basal falling short of nervulus; second submarginal cell receiving first recurrent nervure some distance from base, but second recurrent meeting outer intereubitus; knees, anterior tibiae, middle and hind tibiae, except broad dusky clouds, and all the tarsi, rather deep red, the colour of the anterior tibiae bright; abdomen with no distinct bands.

Kelvin Grove, Brisbane, 27-11-11 (*Hacker*). A distinct species, which I cannot associate with any described female. It must be rare at Brisbane, as the specimen taken in 1911 remains unique.

***Euryglossa walkeriana* Cockerell.**

Female. Brisbane, 12-9-16 (*Hacker*). Previously known only by the unique type, collected at Launceston, Tasmania. It seems to be a little smaller than the type, and the hind margin of the first abdominal segment is red.

***Euryglossa neglectula* subsp. *mica* Cockerell.**

Female. Brisbane, 20-9-16 (*Hacker*). Male. Brisbane, 3-10-16 (*Hacker*). Typical *neglectula* was described from "Australia" from an old specimen in F. Smith's collection.

***Euryglossa reginae* Cockerell.**

Male. Brisbane (*Hacker*); Ebor, N.S.W., 1-1-16, a variation with the flagellum dark, reddened only at base beneath.



**Euryglossa nubifera** sp. n.

Male. Length about 6 mm., black, the head and thorax with rather abundant dull white hair, and no light markings; face broad but orbits converging below; clypeus dullish, with long pale hair, not conspicuously punctured; mandibles dark red apically; front dull; facial foveæ linear; antennæ long and rather thick, flagellum obscure reddish beneath; mesothorax and scutellum dullish, without evident punctures (the compound microscope shows a minutely tessellate surface); tegulæ dark, with broad reddish margin posteriorly; wings hyaline, faintly dusky, beautifully iridescent, with a large fuliginous apical cloud; stigma pale reddish with dark margin, nervures fuscous; second submarginal cell large, receiving recurrent nervures not very far from base and apex; femora black with red knees; tibiæ and tarsi bright ferruginous, the hind ones strongly infuscated posteriorly; first three abdominal segments dull black, with the broad hind margins (that on first reddish) shining; rest of abdomen shining; apex with a red spoon-shaped plate; venter red, the second and third segments with dark transverse bands.

Coolangatta, Queensland, 7-9-13 (*Dr. A. J. Turner*). Easily recognised by the clouded apices of anterior wings.

A female from Coolangatta, of the same date, was set apart as an entirely different species, but on closer inspection it is evidently *nubifera*. It is nearly 8 mm. long, much more robust than the male, and the strongly dusky (brownish) wings have the apical cloud indistinct though perceptible. The outer intercubitus has an angle at the middle, from which proceeds an appendicular vein, and there is another similar short appendicular vein near its lower end. These are only slightly indicated in the male. The legs are coloured as in the male, except that the hind tibiæ are black, and their tarsi largely black. The face is broad, not hairy, the clypeus with very few weak punctures. Flagellum ferruginous beneath except at base; mandibles with only a faint suggestion of red near apex; facial foveæ linear. The abdomen has the first two segments dull, except the margins, the others shining. The mesothorax and scutellum are dullish, without distinct punctures. There is black hair on the abdomen just below the apex.

**Euryglossa jucunda** Smith.

Female. Ebor, N.S.W., 1-1-16. Length about 7 mm.; sides of face with much white hair; tegulæ dark reddish-brown; stigma same colour as tegulæ; only mall joints of tarsi red. This is what I have determined as *jucunda*, but it is possible that actual comparison with the type from Western Australia would show that the form from New South Wales and Queensland is separable. It is also possible, judging from Smith's account, that the original *jucunda* was a mixture of two species.

The following key will facilitate the separation of the species of *Euryglossa* in the present collection. I have also added the species of *Pachyprosopis* :—

Abdomen red .. .. .	1.
Abdomen not red .. .. .	2.
1. Mesothorax red .. .. .	<i>E. politifrons</i> Ckll.
Mesothorax black; wings hyaline .. .. .	<i>E. occipitalis</i> Ckll.
2. Mesothorax dark green .. .. .	<i>E. walkeriana</i> Ckll.
Mesothorax yellow .. .. .	<i>E. furcifera</i> Ckll.
Mesothorax black, marked with yellow; clypeus yellow .. .. .	3.
Mesothorax entirely black .. .. .	5.
3. Scapæ dark; clypeus with two dark spots; a yellow spot on front .. .. .	<i>E. calliopsiformis</i> Ckll. ♀
Scapæ yellow, at least in front .. .. .	4.
4. Axillæ spotted with yellow .. .. .	<i>E. calliopsiformis</i> Ckll. ♂
Axillæ entirely black .. .. .	<i>P. humeralis</i> Ckll.
5. Face with light markings .. .. .	6.
Face entirely black .. .. .	7.
6. Legs mainly black; region of mouth red .. .. .	<i>E. hypoleuca</i> Ckll.
Legs yellow; cheeks black .. .. .	<i>P. aurantipes</i> Ckll.
7. Males; antennæ long and slender .. .. .	8.
Females; antennæ shorter .. .. .	13.
8. Large species, about 9 mm. long .. .. .	<i>E. longicornis</i> Ckll.
Much smaller .. .. .	9.
9. Flagellum light red beneath .. .. .	10.
Flagellum dark .. .. .	11.
10. Apex of abdomen red .. .. .	<i>P. barbata</i> Ckll.
Apex of abdomen not red .. .. .	<i>E. reginæ</i> Ckll.
11. Wings with a conspicuous apical cloud .. .. .	<i>E. nubifera</i> Ckll.
Wings without an apical cloud .. .. .	12.
12. Larger; hind tibiæ largely red .. .. .	<i>E. reginæ</i> Ckll., var.
Smaller; hind tibiæ without red .. .. .	<i>E. neglectula mica</i> Ckll.
13. Large and robust; anterior wing about 7 mm. long; abdomen greenish .. .. .	<i>E. depressa</i> Smith.
Much smaller .. .. .	14.
14. Abdomen metallic; only small joints of tarsi red .. .. .	<i>E. jucunda</i> Smith.
Abdomen not metallic; tarsi largely red or nearly all red .. .. .	15.
15. Larger; middle tibiæ red in front .. .. .	<i>E. nubifera</i> Ckll.
Smaller; middle tibiæ black .. .. .	<i>E. neglectula mica</i> Ckll.

#### PACHYPROSOPIS Perkins.

##### *Pachyprosopis aurantipes* Cockerell.

Brisbane, 3-10-12 (*Hacker*).

##### *Pachyprosopis humeralis* Cockerell.

Oxley, Brisbane, 24-9-14 (*Hacker*).

**Pachyprosopis barbata** Cockerell.

Male. Sunnybank, Brisbane, 19-11-13 (*Hacker*); Tambourine, 23-10-12.

## CERATINIDÆ.

## NEOCERATINA Perkins.

**Neoceratina australensis** Perkins.

Glen Innes, N.S.W., April 28, 1916. One female. The mesothorax and scutellum are dark-green. Previously known from Queensland.

## EXONEURA Smith.

**Exoneura insularis** Cockerell.

Stradbroke Island, five females, Sept. 17, 1915 (*Hacker*).

**Exoneura bicolor** Smith.

Armidale, N.S.W., 5-2-15, two females; Stanthorpe, Q., 6-11-14, one female.

**Exoneura nitida** n. sp.

Female. Length about 6 mm.; black, with the margins of the fourth and fifth abdominal segments very narrowly and often hardly perceptibly reddened; eyes rather pale purplish-brown; face and front highly polished and shining; face broad, orbits slightly converging below; clypeus with a very broad creamy-white band, broadest above where it occupies the whole width of the clypeus; flagellum obscurely brownish beneath; thorax and first three segments of abdomen smooth and shining; tubercles cream-colour; tegulæ black; wings dilute brown, stigma and nervures very dark; under side of thorax with short pale hair; hind tibiæ and tarsi with much black hair.

Male. Length about 6 mm.; similar to this sex of *E. aterrima*, but larger, head broader, eyes larger, reddish-brown; white (creamy-white) area on face broader; wings browner. The face is bare, except for a very scanty short pubescence.

Stradbroke Island, Q., Sept. 17, 1915, four females, 1 male (*Hacker*). Very close to *E. aterrima* (Ckll.), but larger, with brownish wings and black legs. Also near *E. botanica* Ckll., but differing in the legs and other characters.

**Exoneura robusta** n. sp.

Female (Type). Length about 6.5 mm.; robust, black, the very broad abdomen shining dark chestnut-red; with the first segment (except apical margins laterally), nearly all of second, and a transverse arched band on third, black; face very broad, orbits not converging; clypeus with a broad cream-coloured band, which in the type specimen is urn-shaped and pointed below, but in others variable, hooked at

sides above, and reaching clypeal margin below the sides irregular; mandibles dark reddish in middle; antennæ dark; mesothorax dullish, not highly polished; tubercles black, with a fringe of grey hair; tegulæ black, reddish posteriorly; wings strongly reddened; stigma dusky red, margined with darker; nervures fuscous; venter of thorax with shining white hair; hair on hind tibiæ and tarsi reddened anteriorly.

Male. Length about 6.5 mm.; more slender, with the usual male characters. Face narrow, with long black hair, and no light markings; stigma narrower and darker; tibiæ apically, and all the tarsi red; abdomen darker, even the apical segments suffused with black. This is possibly a different species, but probably belongs here.

National Park, Q., Dec., 1919, four females, one male (*Hacker*). Close (♀) to *E. hamulata* Ckll., with the same broad face, but easily distinguished by the much darker legs, only partially and very obscurely reddened, if at all. The abdomen also is much darker. The male is remarkable for the entirely black face.

#### ***Exoneura baculifera* n. sp.**

Female. Length somewhat over 6 mm., but smaller than *E. robusta*; black, robust, with the broad abdomen dark chestnut-red, the first two segments mainly black, and a transverse dusky cloud on third; knees, anterior and middle tibiæ apically, and their tarsi, rather dusky-red; clypeus with a narrow rod-like pale yellow stripe, often subobsolete; orbits converging below; antennæ dark; tegulæ piceous, reddest behind; wings strongly brownish, or reddish, stigma and nervures dusky ferruginous; tubercles dark; hind tibiæ and tarsi with much black hair, shining reddish at apex of tibiæ.

National Park, Q., Dec., 1919, five females (*Hacker*). Allied to *E. angophore obliterated* Ckll., but easily separated by the dark legs and abdomen. It is to *obliterated* what *robusta* is to *hamulata*.

#### ***Exoneura excavata* n. sp.**

Female. Length about 7.5 mm.; black, with the abdomen dark chestnut-red, the first segment with a broad blackish suffusion on disc; anterior knees, tibiæ apically, and all the tarsi dark red; in certain lights the middle and hind tibiæ appear to be bright red above, but this is due to remarkable coppery hair; the hair on hind tarsi is also red, subappressed; face broad, excavated and basin-like, shining (though the clypeus is minutely punctured), wholly black; labrum convex, dark red; mandibles reddish; antennæ entirely dark; mesothorax and scutellum polished; tubercles black; hair on under side of thorax pale reddish; tegulæ piceous; wings strongly reddish; stigma dusky-red with darker margin, nervures dusky-reddish; apical part of abdomen with short red hair.

National Park, Q., Dec., 1919, one female (*Hacker*). A remarkable species, easily known by the black excavated face.

**Exoneura diversipes** n. sp.

Male. Length about 7 mm.; black, the knees, tibiæ at extreme apex, and middle and anterior tarsi pale reddish, hind tarsi dark reddish; eyes very large, converging below; face with a very broad reversed T of greenish-white, including all of clypeus except a narrow stripe down each side; lateral marks represented by short slender lines running up from the ends of the arms to the T; labrum greenish-white; face with long black hair; antennæ entirely black; hair of head and thorax above long, brownish-black, pleura with blackish hair, under side of thorax with white; tegulæ black; wings hyaline, stigma and nervures clear ferruginous; all the femora, and anterior tibiæ, and tarsi slender, hind tibiæ slender basally and broad apically, their basitarsi long and very thick.

National Park, Q., Dec., 1919, three males (*Hacker*). Very distinct from all described males, and I know of no female to which it could be assigned.

**Exoneura rhodoptera** n. sp.

Female. Length about 6 mm.; very robust, black, with the abdomen marked with dark red, at sides of first and second segments, a pair of hook-shaped marks on second segment, a transverse band (weak or broken sublaterally) on third, base of fourth, and an indistinct transverse band on fifth; face broad, orbits parallel; clypeus with a broad median cream-coloured bar, irregular along the margins, and emitting at the upper end very long hook-like extensions, the whole upper margin of clypeus being narrowly pale; on each side of the lower end of the pale bar is a reddish area; no lateral face-marks; labrum black; flagellum obscure reddish beneath; tegulæ reddish; wings strongly reddish-fuliginous, stigma and nervures dark-reddish; tubercles black; femora with a pale red stripe above, not reaching base; anterior and middle tibiæ and tarsi dark red; hind legs darker.

Stradbroke Island, Q., Sept. 17, 1915, one female (*Hacker*). Allied to *E. hamulata* Ckll., but with very much darker abdomen, legs, and wings.

**Exoneura perpensa** n. sp.

Male. Length about 6 mm.; head and thorax black, with long hair, black on head, dull white on thorax, very faintly yellowish dorsally; head transverse; eyes very large and convex, face narrower, in middle hardly so broad as an eye; clypeus and labrum greenish-white, the light facial area like a reversed wineglass with an extremely thick stem; no lateral marks; antennæ black; mesothorax and scutellum not highly polished; tegulæ dark; wings hyaline, faintly reddish, pale clear red at base; stigma narrow, ferruginous; nervures ferruginous; basal nervure strongly arched, falling far short of nervulus; femora and anterior and middle tibiæ and tarsi slender; hind tibiæ claviform, their basitarsi long and thick; knees, anterior tibiæ except basal half behind, hind tibiæ in front and apically behind, hind tibiæ at apex in front and anterior and middle tarsi all light ferruginous; abdomen parallel-sided, broad at base (slender basally in *bicolor*), first segment black, second black



4. Face with long black hair .. .. .	<i>diversipes</i> Ckll.
Face without long hair .. .. .	<i>nitida</i> Ckll.
5. Abdomen bright red, with thin short orange hair on apical part .. ..	<i>bicolor</i> Smith.
Abdomen dusky or dark red, or partly reddened .. .. .	6.
Abdomen black, or slightly reddened .. .. .	10.
6. Face concave, depressed, entirely black .. .. .	<i>excavata</i> Ckll.
Face not entirely black; if nearly all black, not concave .. .. .	7.
7. Face with lateral cream-coloured spots; abdomen very broad, reddish ..	<i>insularis</i> Ckll.
Face without lateral spots .. .. .	8.
8. Clypeal mark broad, or with lateral hook-like extensions at upper end ..	9.
Clypeal mark a simple narrow stripe, not always well defined .. ..	<i>baculifera</i> Ckll.
9. Legs largely reddened; hook-like extensions of clypeal mark very long ..	<i>rhodoptera</i> Ckll.
Legs black, at most knees reddish, or tibiae and tarsi obscurely reddened; face-marks	
variable .. .. .	<i>robusta</i> Ckll.
10. Face with light lateral spots; flagellum pallid beneath .. ..	<i>insularis</i> Ckll.
Face without light lateral spots .. .. .	11.
11. Face-mark a narrow subobsolete stripe .. .. .	<i>baculifera</i> Ckll.
Face-mark broad, or with lateral extensions above .. .. .	12.
12. Anterior and middle femora with a red stripe above .. .. .	<i>rhodoptera</i> Ckll.
Anterior and middle femora without such a stripe .. .. .	13.
13. Tubercles entirely black, densely fringed with grey hair .. ..	<i>robusta</i> Ckll.
Tubercles largely light; legs black .. .. .	<i>nitida</i> Ckll.

### MELIPONIDÆ.

#### TRIGONA Jurine.

##### *Trigona cassiæ* Cockerell.

Workers from Brisbane, 8-2-16 (*Hacker*), and Caloundra, 20-1-16. (*Hacker*). One of the Brisbane specimens has a dark red abdomen, but it is certainly conspecific, and possibly not fully matured.

##### *Trigona læviceps* Smith.

Many years ago I recorded *Trigona canifrons* Smith from Adelaide R., Australia, basing my identification on comparison with specimens from Ceylon, received from Mr. E. E. Green as *canifrons*. Unfortunately the Ceylon specimens were really *T. læviceps* Sm., and not *canifrons* at all. A specimen now before me, from Gordonvale, N.Q., June, 1918, collected in the scrub by Edmund Jarvis, is identical with the so-called *canifrons* of Australia. I am quite unable to clearly separate it from *læviceps*, though it is rather slender, with the abdomen dark sepia-brown, becoming black apically. Possibly a larger series would indicate a distinct form, but I am inclined to think that we have the Indian *læviceps* probably accidentally introduced into Australia. Bingham states that it builds in crevices in the walls of houses, so it seems quite possible that a nest might be carried with some kind of merchandise. The red antennæ distinguish it from the allied and certainly native *T. carbonaria* Smith.